We claim:

1. A method for purifying an active agent comprising

providing an active agent containing an impurity to be removed;

entrapping the active agent in a diketopiperazine to form a mixture; and

removing essentially all of the impurity from the mixture.

2. The method of claim 1 wherein the active agent is a peptide or protein.

3. The method of claim 2 wherein the peptide or protein is selected from the group consisting of insulin, salmon calcitonin, parathyroid hormone 1-34, octreotide, leuprolide, and RSV peptide.

4. The method of claim 3 wherein the active agent is insulin.

5. The method of claim 1 wherein the impurity is a multi-valent ion.

6. The method of claim 4 wherein the active agent of step (a) is an insulin complex and the impurity is a zinc ion.

7. The method of claim 6 wherein the complex is hexameric insulin.

8. The method of claim 1 wherein the diketopiperazine is fumaryl diketopiperazine.

9. The method of claim 1 wherein the active agent is entrapped by a process which comprises

making a solution of the diketopiperazine,

making a solution or suspension of the active agent,

combining the diketopiperazine solution with the solution or suspension of active agent, and

precipitating microparticles of the diketopiperazine in which the active agent is dispersed, thereby forming the mixture.

10. The method of claim 9 further comprising washing the microparticles with an aqueous solvent for the impurity.

11. A composition for the administration of a peptide to a patient, comprising a peptide stabilized in a diketopiperazine.

12. The composition of claim 11 wherein the peptide is dimeric or monomeric insulin.

13. The composition of claim 12 substantially free of zinc ions.

14. The composition of claim 11 wherein the peptide is glucagon.

15. The composition of claim 11 wherein the diketopiperazine is fumaryl diketopiperazine.

16. The composition of any of claim 11 wherein the peptide is dispersed within or coated onto microparticles of the diketopiperazine.

17. The composition of claim 16 wherein the microparticles are provided in the form of a dry powder.

18. The composition of claim 16 wherein the microparticles are provided as an aqueous suspension in a pharmaceutically acceptable carrier.

19. The composition of claim 11 which is in a form suitable for pulmonary administration.

20. The composition of claim 11 made by a method comprising

providing an active agent containing an impurity to be removed;

entrapping the active agent in a diketopiperazine to form a mixture; and

removing essentially all of the impurity from the mixture.

21. A method for administering an active agent to a mucosal membrane of a person in need of the active agent, comprising

administering to the mucosal membrane a composition which comprises microparticles formed of (i) the active agent and (ii) an effective amount of a transport enhancer to facilitate transport of the active agent across the mucosal membrane by masking a charge of the agent, if any, by hydrogen bonding the transport enhancer to the mucosal membrane, or a combination thereof.

22. The method claim 21 wherein the active agent is a charged molecule.

23. The method of claim 22 wherein the active agent is insulin.

24. The method claim 21 wherein the transport enhancer forms hydrogen bonds with the active agent to mask its charge.

25. The method of claim 21 wherein the transport enhancer is fumaryl diketopiperazine.

26. The method of claim 21 wherein the composition is administered to the lungs via inhalation.

27. A method for delivering insulin to a patient in need thereof, comprising administering to the patient an effective amount of the insulin in a composition which comprises microparticles of a diketopiperazine in which monomeric insulin is encapsulated.

28. The method of claim 27 wherein the diketopiperazine is fumaryl diketopiperazine.

29. The method of claim 28 wherein the composition is in a dry powder form administered to the lungs via inhalation.

30. The method of claim 27 wherein the patient is a Type II diabetic.

31. The method of claim 30 wherein the composition is administered concurrently with, or less than about 20 minutes prior to, the patient eating a meal.

32. The method of claim 27 wherein the composition is provided in one or more unit doses of insulin, each dose equivalent to about 6 IU of insulin.